

# **AGRICULTURE'S ROLE IN ENERGY PRODUCTION**

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# A lot has happened in the last year!

- Hurricanes
- Several new reports on bioenergy
- Several new emerging technologies
- An energy bill
- An election
- A new round of ADECA projects
- Sharp rises in costs of ALL fossil fuels (oil, coal and natural gas)



Before Hurricane  
Katrina



After  
Katrina



# Fossil Fuel Facts

- Oil, Coal and Natural Gas are fossil fuels
- All are finite, and therefore, their use is not sustainable
- All contribute to increased greenhouse gases, and therefore, to the risk of climate change
- All are subsidized in some way.



# OIL

- The US accounts for about 25% of global consumption, but owns only 3% of global reserves.
- We import over 60% of what we use BUT only 15% of this is from the Middle East.
- Experts estimate that we are very close to the point where demand equals supply, after which price will increase sharply.





Before Hurricane  
Katrina



After  
Katrina



# Observations

- Hurricanes have demonstrated (a) that global climate change is real, and (b) how vulnerable we are from an energy point of view.
- Current high gas prices are largely due to increased demand from China and India.
- Demand from China and India is not going away.
- We will likely not see gas below \$2.00 again.
- Biofuels can help!
- If recent hurricanes are not a wakeup call for Washington, nothing will be.



Rural America will respond!  
(a lot faster than the Federal  
Government)





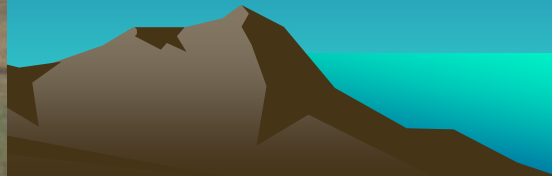








# Single Residence Wind Power









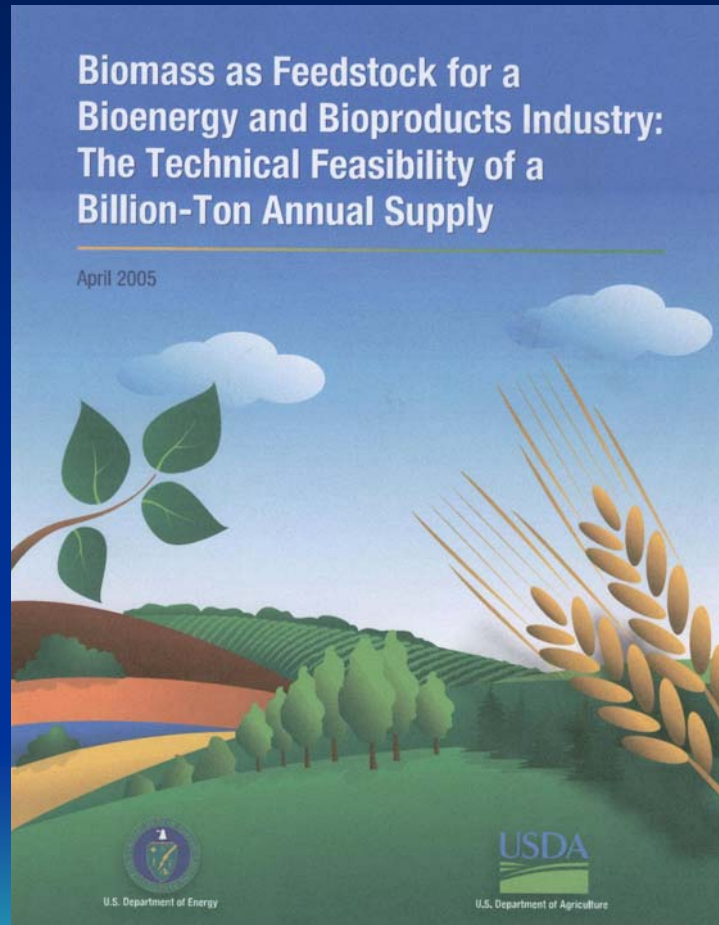




Can Agriculture really play a role?



# New USDA/DOE Report





# **BIOMASS AS FEEDSTOCK FOR A BIOENERGY AND BIOPRODUCTS INDUSTRY: THE TECHNICAL FEASIBILITY OF A BILLION-TON ANNUAL SUPPLY**

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A Joint Study Sponsored by  
U.S. Department of Energy  
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DOE/GO-102005-2135  
ORNL/TM-2005/66

# USDA/DOE Report

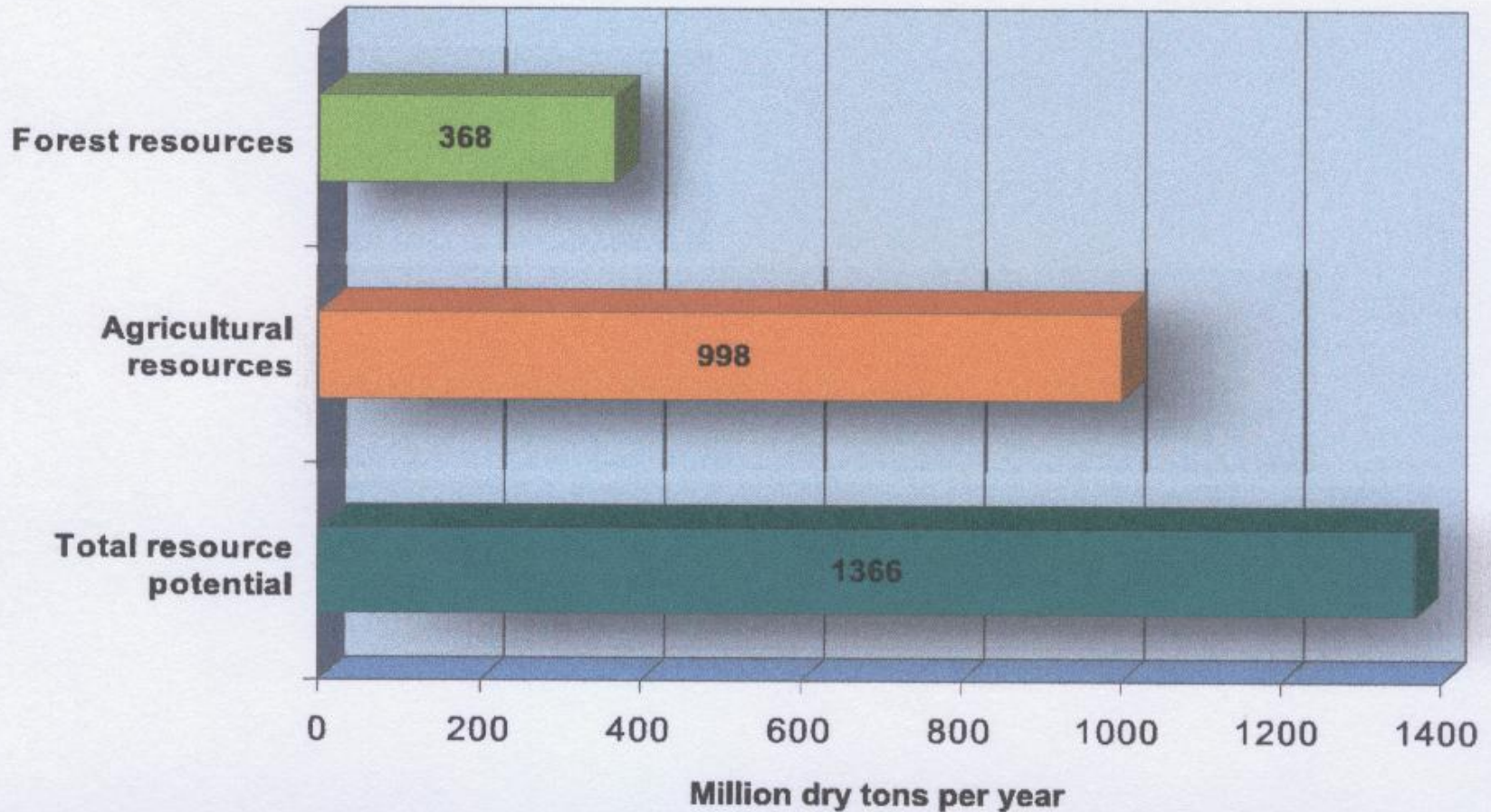


Figure 1: Annual biomass resource potential from forest and agricultural resources

DOE study shows that Alabama  
has enough biomass to supply  
all its residential power needs.





# Ethanol Technologies

- Acid hydrolysis – fermentation (60 gal/ton)
- Enzyme hydrolysis – fermentation (60-80 gal/ton)
- Gasification – fermentation (up to 100 gal/ton)
- Gasification – catalytic conversion (90-130 gal/ton)
- Funding is still needed to take the last step!





NEED CASH  
FOR ALCOHOL  
RESEARCH

# Biomass Resources

- Crop residues
- Energy crops
- Animal waste



# Crop Residues

In the field

vs.

At a processing plant



# Corn Stover



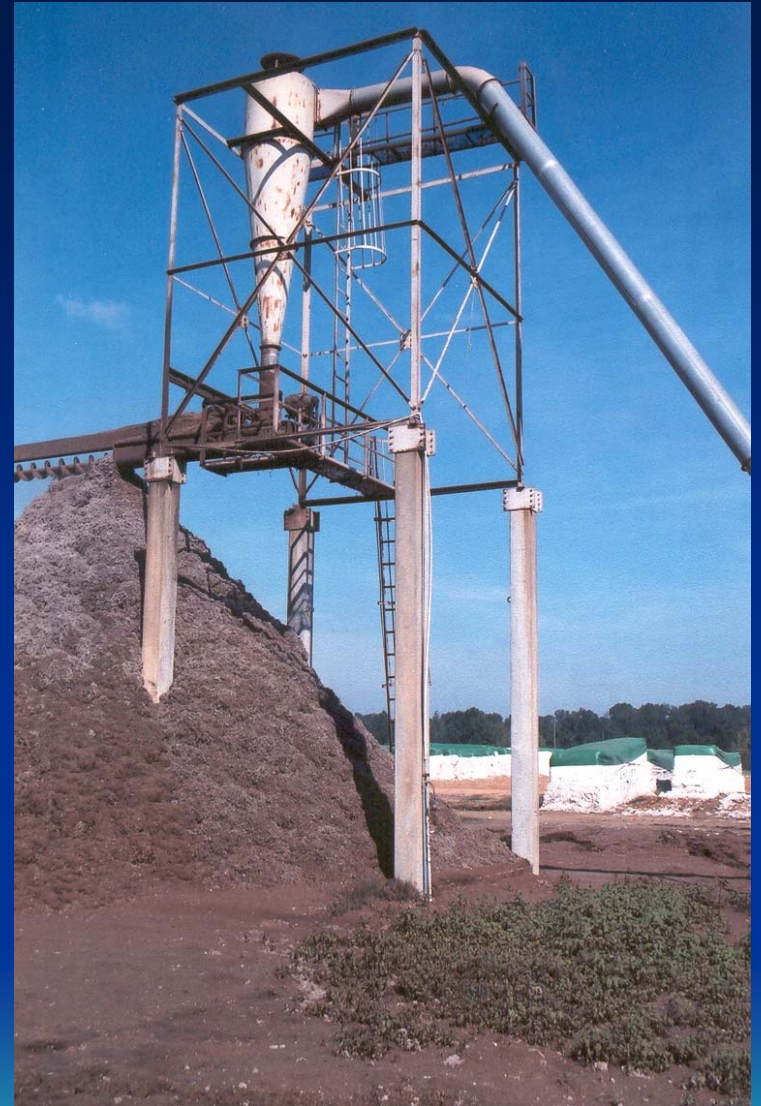


# Cotton Stalks





# Cotton Gin Trash





# Sugarcane Bagasse



# Peanut Hulls

Clean, low ash and moisture, but low  
bulk density



# Energy Crops





# Perennial Grasses



# Switchgrass





















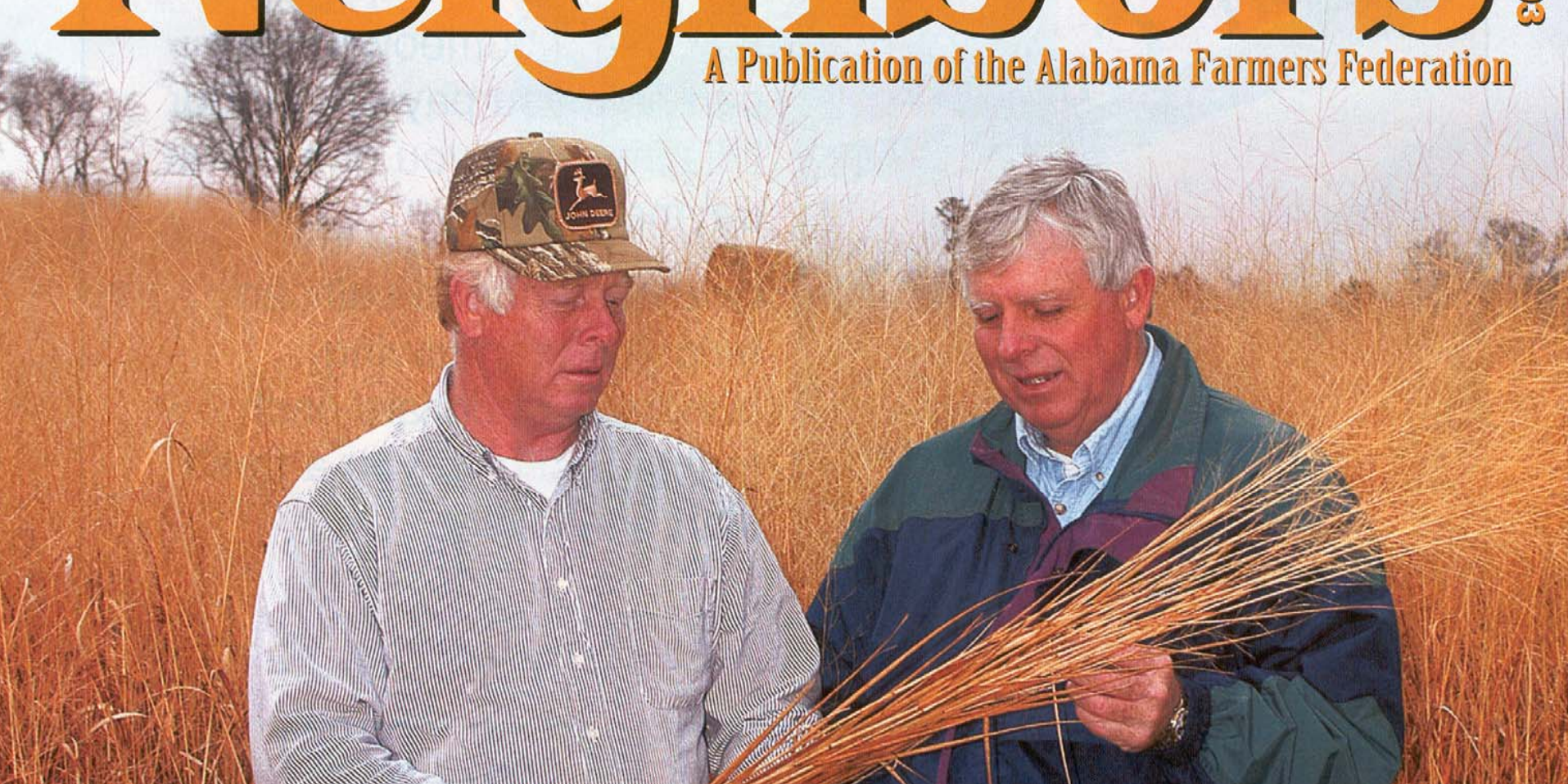




# Neighbors

MARCH 2003

A Publication of the Alabama Farmers Federation











Bale ..... or..... chop







## Bahiagrass



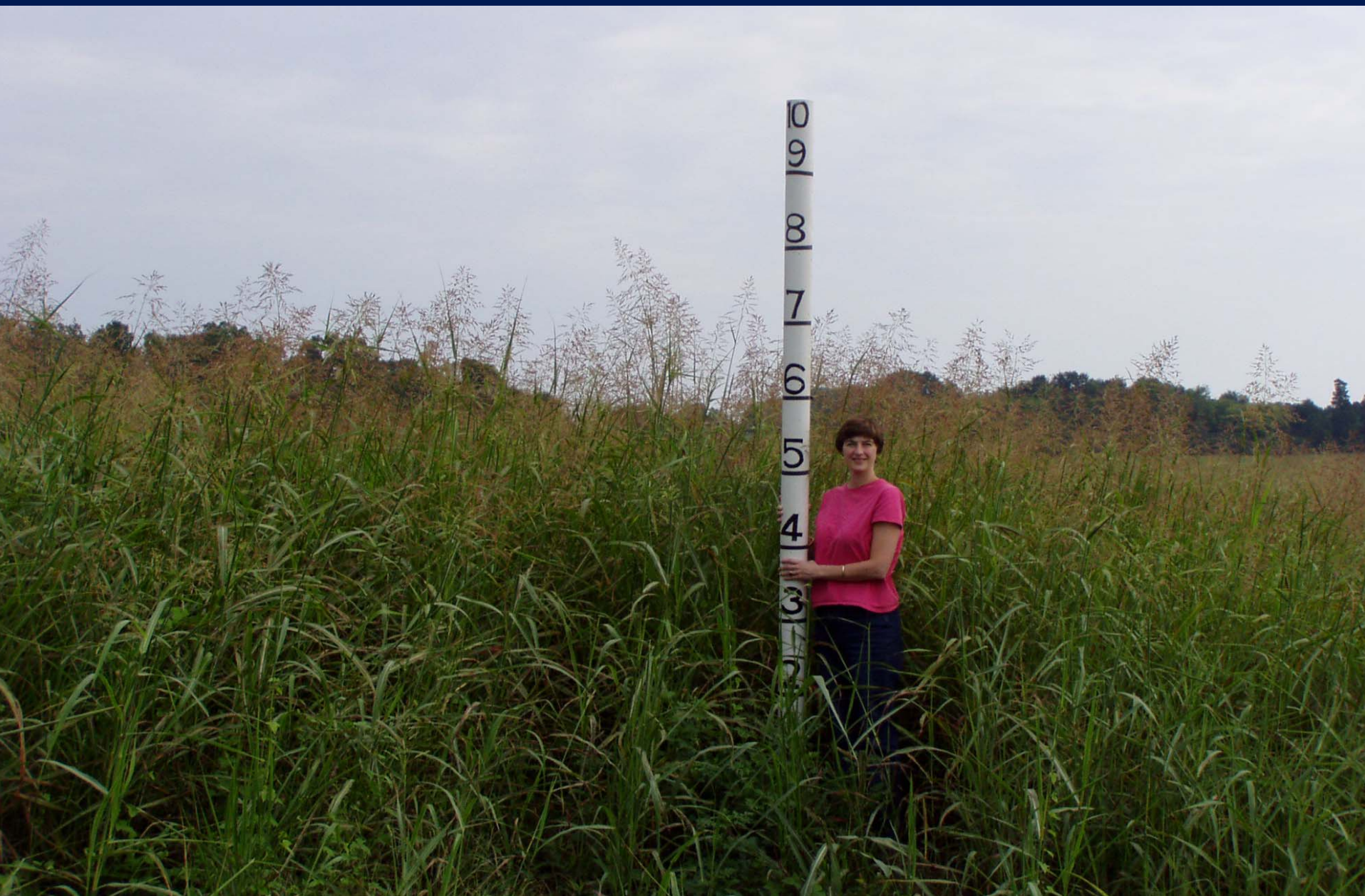
## Bermudagrass



10 million acres of each already established !



# Johnsongrass





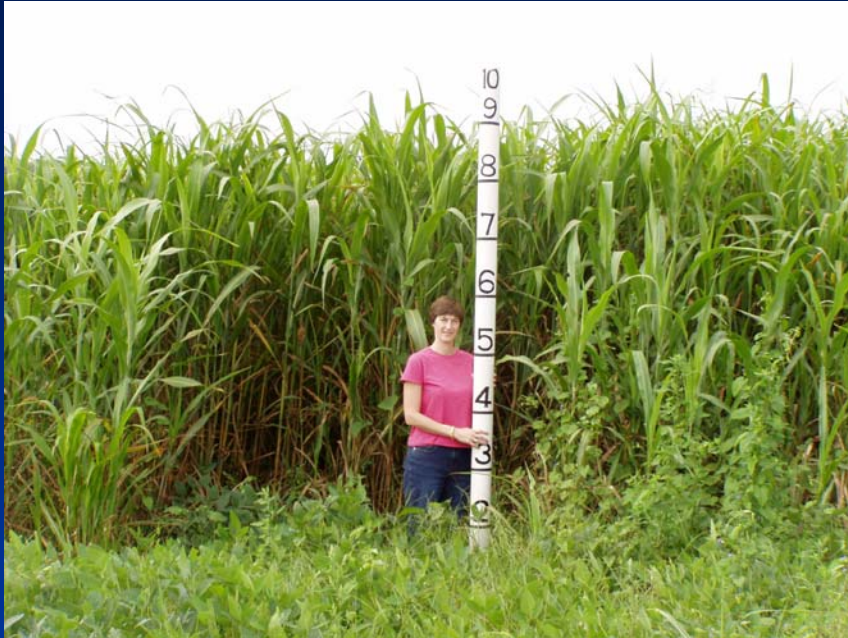
# Sugarcane



# Annual Grasses/Crops







4 Evergreen forage sorghum: 8-12 tons/acre



# Animal Waste





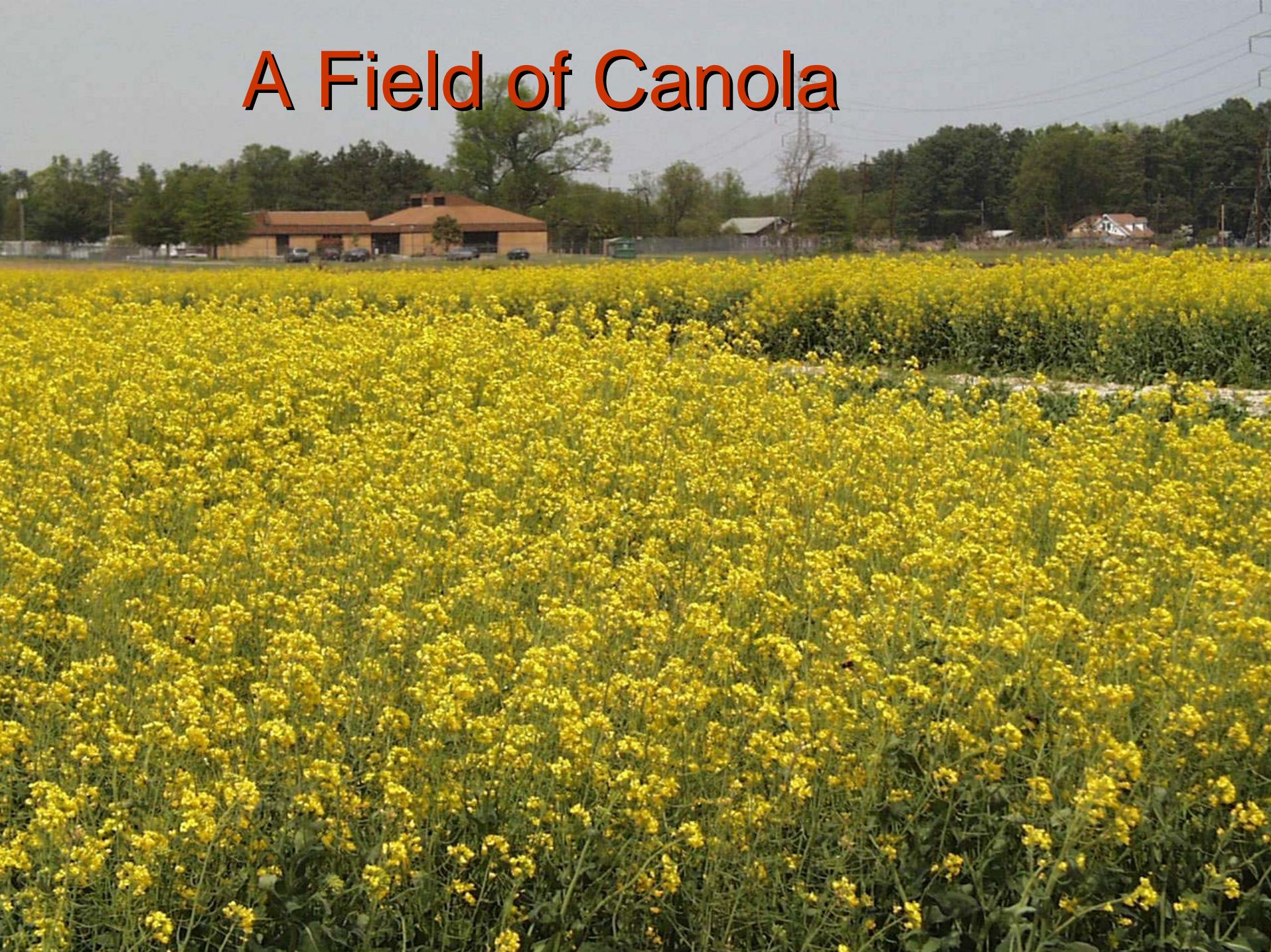
# Grain and starch crops for biodiesel and ethanol.

- Canola and rape seed
- Castor bean
- Cassava
- Sweet potatoe





# A Field of Canola







Agriculture gets  
credit for wind  
energy (wind farms)



# Some final observations

- Some progress is being made.
- The new energy bill is a step in the right direction, but is still hopelessly inadequate.
- Other countries are way ahead of us.
- Our next chance for policy change is in the next Ag Bill.



# Needs for Commercialization?

- Policy more than technology.
- At the state level, net metering would help.
- At the federal level, incentives and funding of first commercial plants for emerging technologies.
- None of these can be accomplished without education/information distribution.





Education is probably  
our greatest need!



Thank you for your attention!

Questions?

